## SYSTEM OUTLINE

### 1. HEATER BLOWER OPERATION

Manual operation

When the blower speed is set to a certain level using the blower control SW, the A/C control assembly sends the signals to the blower control to control the blower motor speed.

Auto operation

When the auto SW is turned on, the A/C control assembly sends the signals from various sensors and temperature SW to the blower control to automatically control the blower motor speed.

### 2. AIR INLET CONTROL SERVO MOTOR CONTROL

(Manual operation)

If the FRESH/RECIRC select SW is operated, the A/C control assembly is controlled and the air inlet control servomotor works. As a result of that, the mode can be changed between the RECIRCULATED mode and the FRESH mode.

(Auto operation)

When the FRESH/RECIRC select SW is turned to AUTO, the A/C control assembly detects total necessities of preventing toxic substances (e.g. HC, CO, NOX) outside, which exist in exhausted gas, flow into the vehicle, maintaining a maximum efficiency of air−conditioning, or preventing the windows get fogged. By controlling the assembly, the air inlet control servomotor is operated to changes the modes automatically between the RECIRCULATED mode and the FRESH mode.

However, the exhaust gas sensor does not work to detect the substances for automatic mode changes for about 30 seconds just after the engine starts. If you keep pushing the FRESH/RECIRC select SW for about 2 seconds, the sensitivity adjustment mode of the exhaust gas sensor becomes available and you can adjust the sensitivity of the sensor using this mode.

* AUTO RECIRCULATED mode
  The RECIRCULATED mode is selected when the inside temperature is high.
* AUTO FRESH mode
  The FRESH mode is selected under the following conditions:
  * When the blower or A/C is turned to OFF from ON.
  * When the outside temperature is low.
  * When vehicle is running in super−high speed.

### 3. AIR VENT MODE CONTROL SERVO MOTOR CONTROL

(Manual operation)

If the mode select SW is operated, the A/C control assembly is controlled to operate the air vent mode control servo motor and the positions of outlets change among FACE, BI−LEVEL, FOOT, FOOT/DEF and DEF.

(Auto operation)

When the AUTO mode is selected, the A/C control assembly selects the best position of the outlet according to the signals from various sensors and operates the air vent mode servomotor to change the outlet position among FACE, BI−LEVEL and FOOT.

### 4. AIR MIX CONTROL SERVO MOTOR CONTROL

According to the signals from various sensors, the A/C control assembly operates the air mix control servomotor and sets the blowoff temperature to the most appropriate degree in order to adjust the temperature to the desired degree set by the temperature control SW.

### 5. INTELLIGENT SWING REGISTER

When the A/C is at SWING mode, the A/C control assembly selects the center face grill direction and angle, and controls the swing grill resistor. At initial cooling stage, the center face grill is adjusted to face the occupants, and at initial warming stage, the multiplex−mode is used together to provide warm air to the occupants. When the temperature inside the vehicle compartment gets stable, the swing angle is increased gradually so that the wind does not go to the occupants directly. However, the grill is not swung while the multiplex−mode is working.

The seat belt warning occupant detection sensor detects whether there is a passenger on the front passenger's seat, and if not, the front passenger side center face grill moves as the driver's side. When the DUAL SW is pushed, the passenger's side grill will move symmetrically to that of the driver's side.

### 6. NEURAL NETWORK AUTOMATIC A/C CONTROL

The neural network consists of neurons of the input layer, the inner layer and the output layer. The neural network takes and processes the information of the input layers (Such as the outside temperature, quantity of sunlight, and temperature inside the vehicle decided by the switches or each sensor outputs) and outputs them to the inner layer. Based on the output information, the inner layer adjusts the strength of the connection between neurons and calculates its total as the output layers (Such as appropriate blowoff temperature, adjustment of the quantity of sunlight, ideal quantity of the wind, and control level of the blowoff mode). As a result of that, the A/C control assembly evaluates conditions under the various circumstances and helps the neural network memorize the ideal air conditioning detected to control A/C automatically.

**7. AIR CONDITIONING OPERATION**

When engine is operating as well as the A/C switch is ON, the signal is sent to TERMINAL MPX2 of the engine control module from TERMINAL MPX+ of the A/C control assembly by the multiplex communication. As a result of that, the electricity is sent through the TERMINAL ACMG of the engine control module and the A/C COMP relay is turned to ON. And the A/C compressor operates by the A/C magnetic clutch being ON.

**8. FILTER CLOGGING INFORMATION SYSTEM**

The A/C control assembly can prospect and detect the cabin air filter clogging by monitoring inlet modes or quantity of the wind at all times. If it detects the clogging on the filter, it sends the signal to the combination meter by multiplex communication. And the message requiring A/C filter replacement is displayed on the multi information display. If you keep pushing OFF button on A/C control panel for over 4 seconds, the detection value for filter clogging is cleared.

**SERVICE HINTS**

**A14 (A) A/C CONTROL ASSEMBLY**

(A) 3–GROUND : Approx. **12** volts with ignition SW at **ON** or **ACC** position
(A) 9–GROUND : Approx. **12** volts with ignition SW at **ON** or **ST** position
(A)21–GROUND : Always approx. **12** volts
(A) 1–GROUND : Always continuity

**○ : PARTS LOCATION**

| Code | See Page | Code | See Page | Code | See Page |
|---|---|---|---|---|---|
| A1 | 126 (RHD) | B4 | 138 (RHD) | J13 A | 131 (RHD) |
| A2 | 126 (RHD) | C6 | 130 (RHD) | J14 B | 131 (RHD) |
| A3 | 126 (RHD) | C10 | 130 (RHD) | J15 A | 131 (RHD) |
| A4 | 126 (RHD) | C12 | 130 (RHD) | J16 B | 131 (RHD) |
| A14 A | 130 (RHD) | D6 | 131 (RHD) | M2 | 132 (RHD) |
| A15 B | 130 (RHD) | D7 | 131 (RHD) | P3 A | 132 (RHD) |
| A16 C | 130 (RHD) | E3 A | 126 (RHD) | R4 A | 133 (RHD) |
| A17 | 130 (RHD) | E4 B | 126 (RHD) | R5 B | 133 (RHD) |
| A18 | 130 (RHD) | E6 D | 126 (RHD) | S1 A | 129 (RHD) |
| A19 | 130 (RHD) | E10 | 126 (RHD) | S2 B | 129 (RHD) |
| A26 A | 130 (RHD) | G1 | 131 (RHD) | S13 | 133 (RHD) |
| A27 B | 130 (RHD) | I18 | 131 (RHD) | S32 A | 137 (RHD) |
| A31 | 130 (RHD) | J1 | 128 (RHD) | S33 B | 137 (RHD) |
| A32 | 134 (RHD) | J4 | 128 (RHD) | S35 | 137 (RHD) |
| A38 | 139 (RHD) | J7 | 128 (RHD) | T15 | 137 (RHD) |
| B2 | 130 (RHD) | J11 | 131 (RHD) | | |

**⬭ : RELAY BLOCKS**

| Code | See Page | Relay Blocks (Relay Block Location) |
|---|---|---|
| 1 | 81 | Engine Room No.1 R/B (Engine Compartment Left) |
| 2 | 82 | Engine Room No.2 R/B (Engine Compartment Left) |
| 4 | 85 (RHD) | Fusible Link Block (Engine Compartment Left) |

**⬭ : JUNCTION BLOCK AND WIRE HARNESS CONNECTOR**

| Code | See Page | Junction Block and Wire Harness (Connector Location) |
|---|---|---|
| DE | 100 (RHD) | Instrument Panel Wire and Driver Side J/B (Right Kick Panel) |
| DF | | |
| DH | | |
| PE | 105 (RHD) | Instrument Panel Wire and Passenger Side J/B (Left Kick Panel) |
| PF | | |
| PG | | |
| PH | | |
| PJ | 107 (RHD) | Floor No.2 Wire and Passenger Side J/B (Left Kick Panel) |

**: CONNECTOR JOINING WIRE HARNESS AND WIRE HARNESS**

| Code | See Page | Joining Wire Harness and Wire Harness (Connector Location) |
|---|---|---|
| EB1 | 152 (RHD) | Engine Wire and Engine Room Main Wire (Inside of ECU Box) |
| IC3 | 154 (RHD) | Instrument Panel Wire and Engine Room Main Wire (Cowl Side Panel LH) |
| ID3 | 154 (RHD) | Instrument Panel Wire and Floor No.2 Wire (Cowl Side Panel LH) |
| IF2 | 156 (RHD) | Instrument Panel Wire and Floor Wire (Left Side of Shift Lever) |
| BE2 | 158 (RHD) | Floor No.2 Wire and Floor Wire (Lower Back Panel RH) |
| BH1 | 162 (RHD) | Rear Seat LH Wire and Floor No.2 Wire (Under the Rear Passenger's LH Seat) |
| BI1 | 162 (RHD) | Rear Seat RH Wire and Floor Wire (Under the Rear Passenger's RH Seat) |

**: GROUND POINTS**

| Code | See Page | Ground Points Location |
|---|---|---|
| EC | 152 (RHD) | Radiator Side Support LH |
| ED | 152 (RHD) | Under the Fusible Link Block |
| EF | 152 (RHD) | LH Side of Cylinder Head |
| IG | 154 (RHD) | Cowl Side Panel LH |
| IH | 154 (RHD) | Left Side of Shift Lever |